

DOCUMENT RESUME

ED 253 576

TM 850 121

AUTHOR Tracey, Terence J.; Sedlacek, William E.
TITLE The Relationship of Noncognitive Variables to Academic Success by Race over Four Years.
INSTITUTION Maryland Univ., College Park. Counseling Center.
PUB DATE [84]
NOTE 21p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Persistence; Affective Measures; *Black Students; Citizen Participation; *Grade Point Average; Higher Education; Leadership Responsibility; *Predictor Variables; Self Concept; Self Evaluation (Individuals); Social Support Groups; *Student Attitudes; Student Educational Objectives; Test Validity; White Students

IDENTIFIERS *Non Cognitive Questionnaire

ABSTRACT

Random samples of 1979 and 1980 entering freshmen were given the Non-Cognitive Questionnaire (NCQ), designed to assess seven noncognitive dimensions associated with minority student academic success. The predictive validity of the NCQ for each race was determined with respect to cumulative grade point average (GPA) and persistence at several time periods over four years. With respect to GPA, the NCQ was found to be highly predictive at all points over four years for both white and black students. The specific factors associated with performance were positive self concept, realistic self appraisal, and preference for long range goals. The NCQ was found to predict persistence well for black students, but not for white students. The specific factors found to be most related to black student persistence were: positive self-concept, realistic self appraisal, and academic familiarity. Early black persistence was also found to be related to having support for college plans and having a preference for long range goals. Later black student persistence was also predicted by having an understanding of racism and having demonstrated community service. These results support the validity of the NCQ and shed some light on the different variables related to black student attrition at various points in time. (Author)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED253576

COUNSELING CENTER

Office of Vice Chancellor for Student Affairs

UNIVERSITY OF MARYLAND

College Park, Maryland



THE RELATIONSHIP OF NONCOGNITIVE VARIABLES TO ACADEMIC SUCCESS BY RACE OVER FOUR YEARS

Terence J. Tracey and William E. Sedlacek

Research Report # 7-84

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

W. Sedlacek

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☒ This document has been reproduced as
received from the person or organization
originating it.
☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

COUNSELING CENTER
UNIVERSITY OF MARYLAND
COLLEGE PARK, MARYLAND

THE RELATIONSHIP OF NONCOGNITIVE VARIABLES
TO ACADEMIC SUCCESS BY RACE OVER FOUR YEARS

Terence J. Tracey and William E. Sedlacek

Research Report # 7-84

THE RELATIONSHIP OF NONCOGNITIVE VARIABLES TO ACADEMIC SUCCESS BY RACE OVER
FOUR YEARS

Terence J. Tracey and William E. Sedlacek

Research Report # 7-84

SUMMARY

Random samples of 1979 and 1980 entering freshmen were given the Non-Cognitive Questionnaire (NCQ) which was designed to assess the seven noncognitive dimensions postulated by Sedlacek and Brooks (1976) to be associated with minority student academic success. The predictive validity of the NCQ for each race was determined with respect to cumulative grade point average (GPA) and persistence at several time periods over four years. With respect to GPA, the NCQ was found to be highly predictive at all points over four years for both white and black students. The specific factors associated with performance were positive self concept, realistic self appraisal, and preference for long range goals. The NCQ was found to be predictive of persistence well for black students while not well for white students. The specific factors found to be most related to black student persistence were: positive self-concept, realistic self appraisal; and academic familiarity. Early black persistence was also found to be related to having support for college plans and having a preference for long range goals. Later black student persistence was also predicted by having an understanding of racism and having demonstrated community service. These results are supportive of the validity of the NCQ and shed some light on the different variables related to black student attrition at various points in time.

The Relationship of Noncognitive Variables to Academic Success:

A Longitudinal Comparison by Race

The issues involved in retention and attrition have become extremely important in higher education. This is true especially with regard to minorities. It has been well documented that the attrition rate is much higher among black students than it is among whites (Astin, 1975, 1978, 1982; Sedlacek & Pelham, 1976). This difference in attrition rate is even larger when the institutions examined are those that are predominately white (Goodrich, 1978; Sedlacek & Webster, 1978). Thus, it is important for student personnel workers to be aware of the dimensions related to attrition in general and as it applies to minorities in particular.

Historically, academic success (either academic achievement or persistence) has been viewed as being largely related to academic dimensions, e.g., lack of ability or poor study habits (Pentages & Creedon, 1978). But more evidence is being accumulated that indicates that noncognitive dimensions are as important or more important to academic success than the traditional academic dimensions (Astin, 1975; Gelso & Rowell, 1967; Messick, 1979; Nelson, Scott, & Bryan, 1984; Pascarella & Chapman, 1983; Pascarella, Duby, & Iverson, 1983; Tinto, 1975).

Sedlacek and Brooks (1976) hypothesized that these noncognitive dimensions are even more important with regard to minority academic

success. They proposed seven noncognitive variables that are related to academic success. These noncognitive variables were: (1) positive self-concept, (2) realistic self-appraisal, (3) understanding of and an ability to deal with racism, (4) preference for long-term goals over more immediate, short-term needs, (5) availability of a strong support person, (6) successful leadership experience, and (7) demonstrated community service. Tracey and Sedlacek (1984) developed an instrument, named the Non-Cognitive Questionnaire (NCQ), to assess these dimensions. They found that the NCQ was content valid and that it was predictive of first and third semester GPA for both whites and blacks, above and beyond that possible with SAT scores. The NCQ was also highly predictive of black student persistence after three semesters.

Several writers have noted the importance of studying student performance beyond the first year, particularly for minority students (Farver, Sedlacek, & Brooks, 1975; Wilson, 1980, 1981, 1983). The purpose of this study was to expand on the findings of Tracey and Sedlacek (1984) by examining the predictive validity of the NCQ for each race at various points over four years. Of concern, was how traditional (SAT scores) and nontraditional (NCQ scores) predictors relate to academic success beyond the more typically studied first year only. Besides extending the predictive validity of the NCQ to four years, the longitudinal design of this study enabled examination of the different variables that are related to academic success at various points in those four years.

Method

Sample and Procedures

All 1979 entering freshmen and a random sample (approximately 25%) of the 1980 entering freshmen who attended summer orientation at a large eastern state university were sampled. Those students who attended summer orientation typically represent 90% of the entering freshmen. These samples were administered the Non-Cognitive Questionnaire (NCQ). Only those students who fully completed the NCQ and whose SAT scores were available were selected for inclusion in this study (77%). The resulting samples were $N=1995$ (1752 whites and 243 blacks) for the 1979 entrants and $N=747$ (571 whites and 176 blacks) for the 1980 entrants.

The predictive validity of the NCQ was examined relative to cumulative grade point average (GPA) and persistence at intervals up to eight semesters. The numbers vary across the analyses due to fluctuations in the information that was obtained from university records.

Instruments

Non-Cognitive Questionnaire (NCQ) was designed to assess the seven factors hypothesized by Sedlacek and Brooks (1976) to be related to minority student academic success as well as the added dimension of general academic familiarity, which was defined as the extent to which a student's extracurricular activities and interests related to formal academic subjects. The seven non-cognitive dimensions were: (a) global

positive self-concept as related to expectations for the coming years, (b) realistic self-appraisal, especially with respect to academic abilities, (c) an understanding of racism (both personal and institutional) and an ability to deal with it, (d) an ability to work toward longer-term goals, rather than more immediate, short-term ones, (e) availability of people supportive of academic goals, (f) successful leadership experience in either organized or informal groups, and (g) demonstrated community service as indicated by involvement in local community and/or church activities during the years prior to college. The NCQ consists of 23 items including two categorical items on educational aspirations, 18 Likert items on expectations regarding college and self-assessment, and three open-ended items requesting information on present goals, past accomplishments, and other activities. All items were found to have adequate test-retest reliabilities (2-week estimates ranging from .70 to .94 for each item, with a median value of .85) (Tracey & Sedlacek, 1984).

The open-ended items were rated by three judges and showed interrater reliabilities as follows: long range goals (.89), academic relatedness of goals (.83), the degree of difficulty of the listed accomplishments (.88), overall number of activities (1.00), leadership (.89), academic relatedness (.98), and community involvement (.94).

Tracey and Sedlacek (1984) found good support for the construct validity of the NCQ on the eight noncognitive dimensions using factor analysis.

Analyses

Given that academic success can be viewed using any of several criteria (Tracey & Sedlacek, 1981), the relationship of the NCQ to both cumulative grade point average and enrollment status was examined over four years. Step-wise multiple regression was run separately for each year and race employing the NCQ items and SAT scores as predictors and cumulative GPA at semesters 1, 3, and 6 for the 1980 entrants, and 1, 3, 5, and 8 for the 1979 entrants as criteria. The relationship of the NCQ and the SAT scores to continued enrollment was also examined for each year and race separately using step-wise discriminant analysis with enrollment status at 3, 5, and 8 semesters (for the 1979 entrants) or 3 and 6 semesters (for the 1980 entrants) as the criteria. For the analysis of the 1979 entrants after eight semesters, those students who graduated were added to those who persisted, to reflect successful progress toward a degree, and contrasted with those who neither graduated nor continued to be enrolled.

The analyses for the 1979 sample on the first and third semester GPA, the 1980 sample on first semester GPA, and the 1979 sample on enrollment status after three semesters were reported in Tracey and Sedlacek (1984) and are included here for the purpose of comparison. Due to the great number of analyses performed and space limitations, only the multiple correlation coefficients (or canonical correlations in the case of the discriminant analyses) will be shown for each analysis to give an indication of the relative strength of relationship. Only those variables that significantly added to

prediction were included.

Results

Insert Table 1 About Here

Predicting Grades

The values of the multiple correlation coefficients for each of the separate regressions on GPA are presented in Table 1. Several results are apparent. First, the NCQ provides relatively good prediction of grades for both whites and blacks, typically equal to or greater than that possible using SAT scores alone. This result though should be viewed with caution because the range of scores of admitted students may be more restricted on SAT scores than NCQ scores since the NCQ was not used in admission. This restriction of range, due to not admitting those students with low SAT scores, would be expected to lower the correlations. However, this is countered somewhat by the fact that the school admitted about 90% of the in-state applicants, who make up about 85% of the entering class. Second, when the NCQ is used in conjunction with SAT scores, relatively good prediction is achieved. And finally, the correlation coefficients tend to be stable over the four years. This third result is surprising given the restriction of range that occurred as a result of having fewer students in each successive analysis (due to fewer being enrolled).

Insert Table 2 About Here

The specific noncognitive variables that significantly added to prediction in each analysis are listed (in order of entry in the equation) in Table 2. For both races, the items that were predictive of grades at all points of one's academic career were those that reflected positive self-concept and realistic self-appraisal. Items reflecting a preference for long range goals were significant in predicting first and third semester grades for both races, while they did not attain significance in the regressions on either six or eight semester grades. Academic familiarity, as reflected in a preference for outside interests highly associated with academic subjects, was found predictive of later (six and eight semester) GPA for whites but not for blacks. Demonstrated community service prior to college was found to be significant with regard to later GPA only for the black subsamples.

Insert Table 3 About Here

Predicting Persistence

The canonical correlation coefficients of each of the discriminant analyses are presented in Table 3. Several trends can be seen. First, the SAT scores showed little relationship to persistence for both races. Second, prediction of persistence for whites using the NCQ and

SAT was low, while prediction for the black subsamples was fairly good. Third, as with the regressions, the magnitude of the predictions was relatively stable over time, ranging from $R = .40$ to $R = .52$.

c c

What little prediction there was for the white subsamples was primarily due to the items reflecting positive self-concept. For the black subsamples, though, many of the variables were found to be significant. Over all the time periods, persistence was found to be significantly related to black students' academic self-confidence, realistic self-appraisal of academic skills, and academic familiarity. For both black subsamples, having support for college plans and having a preference for long range goals were also important in predicting persistence after three semesters, but not later. Having demonstrated community service experience and having an understanding of racism were found to be significantly related to persistence late in one's academic career.

Discussion

The results of this study indicate that student attitudes and perceptions prior to college are predictive of academic success up to four years later. The eight dimensions assessed by the NCQ were found to be predictive of grade point average for both races and especially when used in conjunction with SAT scores. Thus, the NCQ provides valuable information regarding prediction of who will perform well.

Obviously, it is harder to predict academic success over long periods of time, but the NCQ yielded consistent consistent prediction over four years. The NCQ could prove useful in admissions and in identifying those students, both majority and minority, who may be likely to not do well academically. These identified students could then be the focus of programs aimed at increasing their academic success. In this way our programs could be more efficiently and effectively targeted to help those specific students who are determined as needing it most.

Another result that was particularly interesting was that the NCQ was predictive of black student attrition after three, six, and eight semesters, while no strong prediction with either the NCQ or SAT scores was found for the whites. For both races, SAT scores were not especially predictive of continued enrollment. Academic ability does not seem to matter with respect to persistence. For blacks, what appears particularly pertinent to persistence are the noncognitive variables measured by the NCQ. For whites, the picture is less clear. None of the variables assessed here was found to be especially related to persistence for them.

For black students, many of the NCQ variables were found to be related to persistence. First, across all periods of enrollment, the noncognitive variables of positive self concept, realistic self appraisal and academic familiarity were related to persistence in college. For the first year or two, having strong support for one's college plans and having long range goals were significantly related to

persistence. With increasing time, the importance of these two variables waned and later persistence was found to be related to having demonstrated community service and having an understanding of racism. With the first year over, the student would be expected to have to adjust to the school environment. Given the predominantly white environment examined in this study, this may be a difficult process. The student has to start looking for support and belongingness on the campus and not apart from it, i.e., family and outside friends. This presumably would require some interpersonal skills that would be demonstrated through previous community service. Without these skills, the university could be an extremely lonely environment, as found by Suen (1983).

The results of this study are important in their substantiation of many of the hypotheses generated by practitioners and the objective assessment of relatively abstract constructs. These results show that a different process is involved in academic achievement for black and white students. There are many variables related to minority student success that are very different from those for white students. These key dimensions are those that are common concerns of student personnel workers, e.g., self concept, racism, self-assessment, leadership, and community service. We should start designing proactive interventions to address these variables prior to students experiencing adjustment problems. This study provides a method of approaching programming using a diagnostic, data-based instrument. Since certain dimensions

are more or less important at different times, it is even more important that we have a system to help keep ahead of these changes. It is also important that all student affairs functions and offices be involved in aiding minority retention rather than just the minority student office, as is often done. It is all too easy to expect these offices to do all that is required and neglect our potential effect.

Of course, the larger issue is: is it possible to change our colleges and universities so that these variables do not play such differentially important roles between the races? To do as well as white students, minority students must demonstrate a greater variety of characteristics other than just academic ability. The results of this study indicate that efforts are required of both a short and long term nature. Short-term concerns relate to the question: what steps can we take to help ensure minority student success? While the long-term issue is: how can we change our colleges so as to reduce the institutional racism inherent in these results?

References

- Astin, A. W. (1975). Preventing students from dropping out. San Francisco: Jossey-Bass.
- Astin, A. W. (1978). Four critical years. San Francisco: Jossey-Bass.
- Astin, A. W. (1982). Minorities in American higher education. San Francisco: Jossey-Bass.
- Farver, A. S., Sedlacek, W. E., & Brooks, G. C., Jr. (1975). Longitudinal predictions of university grades for blacks and whites. Measurement and Evaluation in Guidance, 7, 243-250.
- Gelso, C. J., & Rowell, D. (1967). Academic adjustment and persistence of students with marginal academic potential. Journal of Counseling Psychology, 14, 478-481.
- Goodrich, A. (1978, March). A data-driven minority student retention model for faculty and administrators in predominately white institutions. Paper presented at the annual meeting of the American College Personnel Association, Detroit.
- Messick, S. (1979). Potential uses of noncognitive measurement in education. Journal of Educational Psychology, 71, 281-292.
- Nelson, R. B., Scott, T. B., & Bryan, W. A. (1984). Precollege characteristics and early college experiences as predictors of freshman year persistence. Journal of College Student Personnel, 25, 50-54.
- Pascarella, E. T., & Chapman, D. W. (1983). A multi-institutional path

- analytic validation of Tinto's model of college withdrawal.
American Educational Research Journal, 20, 87-102.
- Pascarella, E. T., Duby, P. B., & Iverson, B. K. (1983). A test and reconceptualization of a theoretical model of college withdrawal in a commuter institution setting. Sociology of Education, 56, 88-100.
- Pentages, T. J., & Creedon, C. F. (1978). Studies of college attrition: 1950-1975. Review of Educational Research, 48, 49-101.
- Sedlacek, W. E., & Brooks, G. C., Jr. (1976). Racism in American education: A model for change. Chicago: Nelson-Hall.
- Sedlacek, W. E., & Pelham, J. C. (1976). Minority admissions to large universities: A national survey. Journal of Non-White Concerns in Personnel and Guidance, 4, 53-63.
- Sedlacek, W. E., & Webster, D. W. (1978). Admission and retention of minority students in large universities. Journal of College Student Personnel, 19, 242-248.
- Suen, H. K. (1983). Alienation and attrition of black college students on a predominately white campus. Journal of College Student Personnel, 24, 117-121.
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. Review of Educational Research, 45, 89-125.
- Tracey, T. J., & Sedlacek, W. E. (1981). A description and illustration of a model for conducting student retention research. National Association of Student Personnel Administrators Journal Field

Report, 5 (2), 5-6.

Tracey, T. J., & Sedlacek, W. E. (1984). Noncognitive variables in predicting academic success by race. Measurement and Evaluation in Guidance, 16, 171-178.

Wilson, K. M. (1980). The performance of minority students beyond freshman year: Testing a "late-bloomer" hypothesis in one state university setting. Research in Higher Education, 13, 23-47.

Wilson, K. M. (1981). Analyzing the long-term performance of minority and nonminority students: A tale of two studies. Research in Higher Education, 15, 351-357.

Wilson, K. M. (1983). A Review of Research on the Prediction of Academic Performance after the Freshman Year (RR 83-11). Princeton, NJ: Educational Testing Service.

Table 1

Summary of Multiple Regressions on Cumulative Grade Point Average

Criterion	Sample	n	NCQ alone Equation	SAT alone Equation	NCQ & SAT Equation
One semester	White 1979	1339	.39*	.40*	.51*
GPA	Black 1979	190	.29*	.33*	.37*
	White 1980	355	.48*	.41*	.59*
	Black 1980	89	.38*	.40*	.51*
Three semester	White 1979	1027	.44*	.39*	.54*
GPA	Black 1979	158	.40*	.39*	.41*
	White 1980	342	.51*	.36*	.58*
	Black 1980	52	.39*	.08	.39*
Five semester	White 1979	629	.40*	.57*	.63*
GPA	Black 1979	89	.35*	.45*	.52*
Six semester	White 1980	315	.49*	.38*	.58*
GPA	Black 1980	43	.59*	.46*	.63*
Eight semester	White 1979	579	.29*	.40*	.47*
GPA	Black 1979	51	.43*	.26*	.54*

* $p < .05$

Table 2

Summary of the Noncognitive Variables that Significantly Added to Prediction in Each Analysis.

Semester	GPA		Persistence	
	Whites	Blacks	Whites	Blacks
First	SC, RSA, Comm, LRG, Lead	SC, RSA, Comm, LRG		
Third	SC, RSA, LRG, Lead	SC, RSA, LRG, Comm	SC	SC, LRG, Supp, Comm, RSA
Fifth	RSA, SC, Acad, LRG	RSA, SC, Acad, Comm	SC	RSA, Supp, Comm
Sixth	SC, Comm, RSA, Acad	SC, Comm	RSA, Comm	RSA, Comm
Eighth	RSA, Acad	RSA, Comm	RSA, SC, Acad	RSA, Acad, SC, Rac

Abbreviations: SC = Self Confidence, RSA = Realistic Self Appraisal, Comm = Community Service, LRG = Long Range Goals, Lead = Leadership, Supp = Support for Academic Plans, Acad = Academic Familiarity, Rac = Understanding Racism.

Table 3
Canonical Correlations (R) for each of the Discriminant
c
Analyses Performed on Enrolment Status.

Criterion	Sample	n	NCQ alone Equation	SAT alone Equation	NCQ & SAT Equation
Third semester enrollment status	White 1979	1046	.18*	.14*	.24*
	Black 1979	154	.49*	.22*	.52*
	White 1980	428	.28*	.14*	.33*
	Black 1980	101	.42*	.03	.42*
Fifth semester enrollment status	White 1979	1046	.22*	.02	.22*
	Black 1979	154	.19*	.01	.19*
Sixth semester enrollment status	White 1980	428	.27*	.13*	.28*
	Black 1980	101	.43*	.25*	.47*
Eighth semester academic progress ^a	White 1979	1046	.21*	.09	.23*
	Black 1979	154	.40*	.10	.40*

^a Academic progress referred to being enrolled or having graduated
vs. neither.

* $p < .05$